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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,352	03/13/2001	Mirosław Z. Bober	1906-0120PUS1	8286
2292 7590 07/28/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER DESIRE, GREGORY M				
ART UNIT		PAPER NUMBER		
2624				
NOTIFICATION DATE		DELIVERY MODE		
07/28/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Notice of Allowability****Application No.**

09/786,352

**Applicant(s)**

BOBER, MIROSLAW Z

**Examiner**

Gregory M. Desire

**Art Unit**

2624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to printer rush filed 5/20/09.
2. ☒ The allowed claim(s) is/are 1-3, 6-10, 25-32 and 34-38 (renumbered claims 1-3, 4-8, 9-16 and 17-21, respectively).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.

## DETAILED ACTION

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Penny Caudle on 7/13/09.

The application has been amended as follows: Specification page 6-10

### Disclosure of Invention

A method of representing an object appearing in a still or video image, by processing signals corresponding to the image ~~set forth in claim 1,~~ is described herein. According to an embodiment, the method comprises deriving a curvature scale space (CSS) representation of the object outline by smoothing the object outline, deriving at least one additional parameter reflecting the shape or mass distribution of a smoothed version of the original curve, and associating the CSS representation and the additional parameter as a shape descriptor of the object.

In a method ~~set forth in claim 2,~~ described herein, an additional parameter relates to the smoothed outline corresponding to a peak in the CSS image.

In a method described herein, ~~set forth in claim 3,~~ an additional parameter relates to the smoothed outline corresponding to the highest peak in the CSS image.

In a method described herein, ~~set forth in claim 4,~~ additional parameter corresponds to the eccentricity of the outline.

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In a method ~~described herein~~~~set forth in claim 5~~, an additional parameter corresponds to the circularity of the outline.

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In a method ~~described herein~~~~set forth in claim 6~~, at least one additional parameter uses a region-based representation.

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In a method ~~described herein~~~~set forth in claim 7~~, an additional parameter is a region moment invariant.

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In a method ~~described herein~~~~set forth in claim 8~~, an additional parameter is based on Fourier descriptors.

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In a method ~~described herein~~~~set forth in claim 9~~, an additional parameter is based on Zernike moments of the region enclosed by the outline.

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A method of representing a plurality of objects appearing in a still or video image, by processing signals corresponding to the images ~~is described herein~~~~set forth in claim 40~~. According to an embodiment, the method comprises, for each object outline, determining if there are significant changes in curvature in the object outline, and, if there are significant changes in curvature of the object outline, then deriving a shape descriptor using a method as claimed in any one of claims 1 to 9 and, if there are no significant changes in curvature of the object outline, then deriving a shape descriptor including at least said additional parameter reflecting the shape of the object outline.

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In a method ~~described herein~~~~set forth in claim 11~~, the additional parameter for an object outline having no significant changes in curvature is based on region moment invariants, Fourier descriptors or Zernike moments of the outline.

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A method of searching for an object in a still or video image by processing signals corresponding to images ~~is described herein~~~~set forth in claim 12~~, the ~~The~~ method comprises inputting a query in the form of a two-dimensional outline, deriving a descriptor of said outline using a method ~~described herein~~~~as claimed in any one of claims 1 to 11~~, and comparing said query descriptor with each descriptor for stored objects using a matching procedure using the CSS values and the additional parameters to derive a similarity measure, and selecting and displaying at least one result corresponding to an image containing an object for which the comparison indicates a degree of similarity between the query and said object.

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In a method ~~set forth in claim 13~~ described herein, the similarity measure is based on  $M$  where  $M = a * GP-S + CSS-S$  where  $GP-S$  is the similarity measure between additional parameters of the compared object outlines and  $CSS-S$  is the similarity measure between the  $CSS$  value for the compared object outlines, and  $a$  is a constant.

In a method ~~described herein~~ set forth in claim 14,  $a$  depends on the number and height of the  $CSS$  peaks.

In a method ~~described herein~~ set forth in claim 15,  $a=1$  when there are no  $CSS$  peaks associated with either outline and  $a=0$  when at least one outline has a  $CSS$  peak.

A method of searching for an object in a still or video image by processing signals corresponding to images ~~set forth in claim 16~~ is described herein. ~~The~~ method comprises calculating a similarity measure between two object outlines using a  $CSS$  representation of said outlines and additional parameters reflecting the shape of or mass distribution within the original outline or a smoothed version of the outline.

An apparatus ~~described herein~~ set forth in claim 17 is adapted to implement a method as ~~described herein~~ claimed in any of claims 1 to 16.

A computer program ~~described herein~~ set forth in claim 18 implements a method as ~~described herein~~ claimed in any one of claims 1 to 16.

A computer system ~~described herein~~ set forth in claim 19 is programmed to operate according to a method as ~~described herein~~ claimed in any one of claims 1 to 16.

A computer-readable storage medium ~~described herein~~ set forth in claim 20 stores computer-executable process steps for implementing a method as ~~described herein~~ claimed in any one of claims 1 to 16.

A method of representing objects in still or video images ~~described herein~~ set forth in claim 21 is described with reference to the accompanying drawings.

A method of searching for objects in still or video images ~~described herein~~ set forth in claim 22 is described with reference to the accompanying drawings.

A computer system ~~described herein~~ set forth in claim 23 is described with reference to the accompanying drawings.

***Allowable Subject Matter***

2. Claims 1-3, 6-10, 25-32 and 34-38 (renumbered claims 1-3, 4-8, 9-16 and 17-21, respectively) are allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory M. Desire whose telephone number is (571) 272-7449. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bella C. Matthew can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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G.D.

July 21, 2009

/Gregory M. Desire/  
Primary Examiner, Art Unit 2624